

CONDUCTIVITY MODULATION TYPE MOSFET

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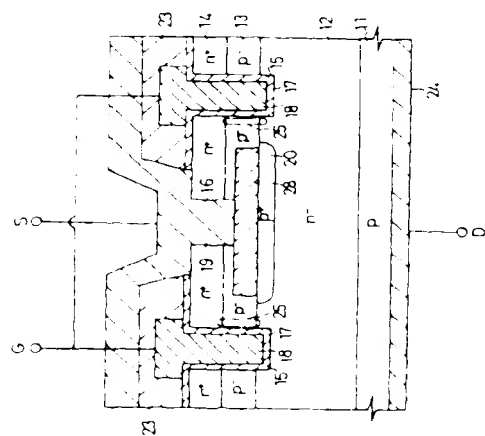
Abstract

PURPOSE: To reduce voltage drop and prevent latchup, by applying a longitudinal structure to a source region and a channel region.

CONSTITUTION: Two kinds of trenches are formed on the surface of a conductivity modulation type MOSFET which has a second conductivity type semiconductor layer 12 of low impurity concentration, a first conductivity type base layer 13 and a second conductivity type source layer 14 on a first conductivity type substrate 11. A gate electrode 18 is buried in one trench 15 via an insulator 17, and a source electrode 19 is buried in the other trench 16. The gate electrode 18, the gate insulator 17, a channel region 25 and the source electrode 19 are formed in the direction perpendicular to the surface. Therefore, a positive hole current by conductivity modulation flows linearly between the gate electrode 18 and the source electrode 19 formed in the direction perpendicular to the surface, so that the voltage drop can be reduced.

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[圖 3]



[圖 4]

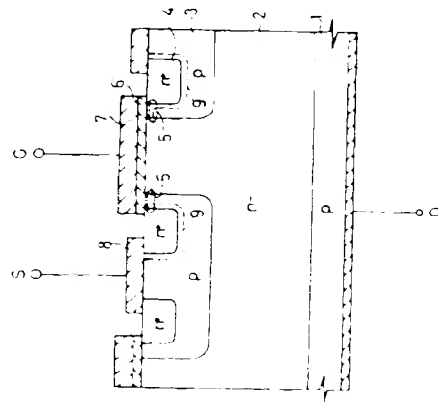


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